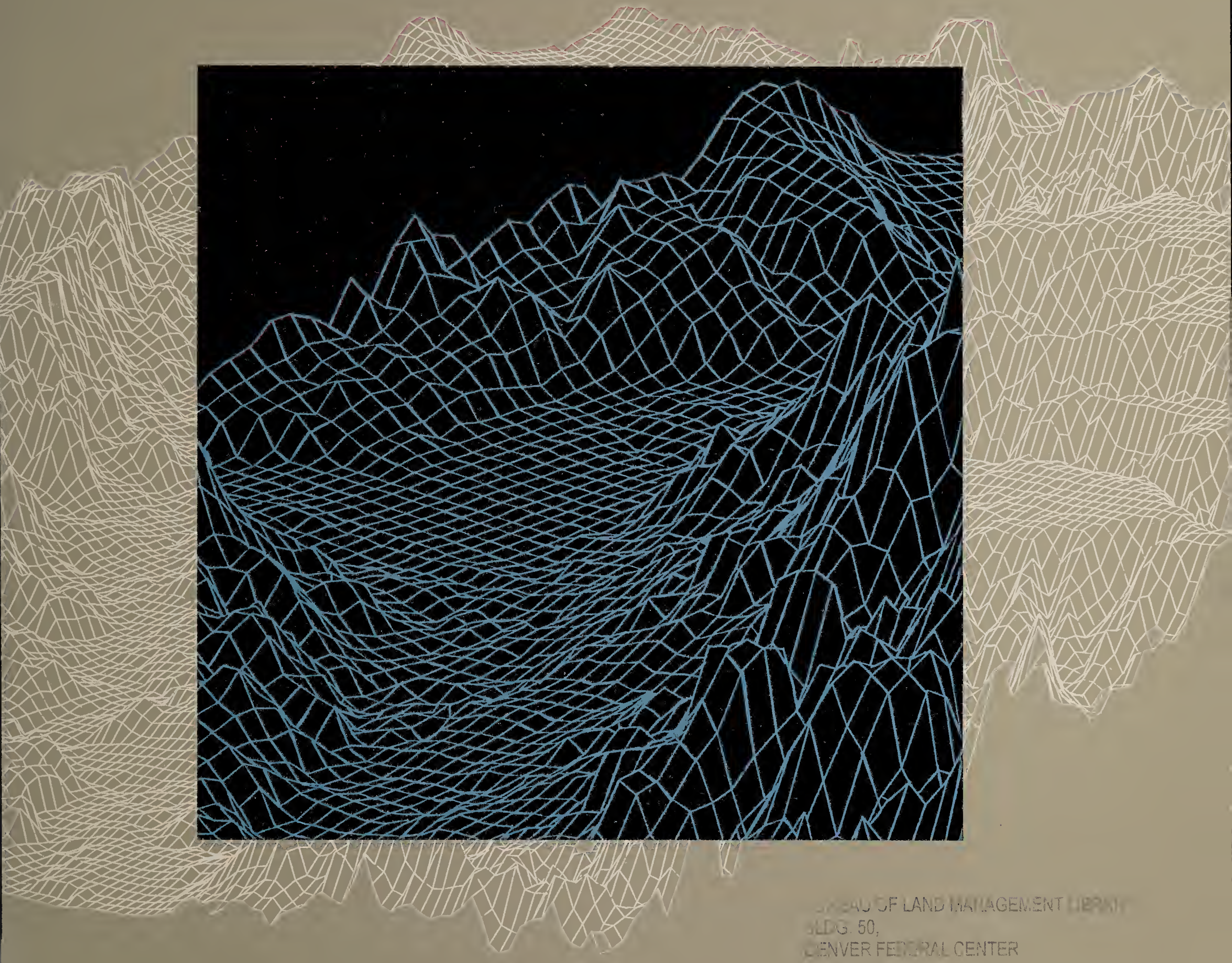
BLM LIBRARY
88068818

Land Information System



BUREAU OF LAND MANAGEMENT LIBRARY
BLDG. 50,
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, COLORADO 80225

HD
221
.L363

United States Department of the Interior
Bureau of Land Management

Why the Need for a Land Information System

The management of the nation's lands must be responsive to the needs and aspirations of American society. As the needs of society become more complex, so do the issues which land managers face. For example, BLM prepares land use plans to make resource use decisions for a variety of competing and often conflicting activities. In making these decisions, extensive public involvement is obtained and alternative choices must be considered. This entails weighing a large amount of data, opinions, and combinations of potential uses. To meet these needs, it takes the use of new automated tools – computers.

As another example, BLM maintains more than one billion public lands and minerals documents. These documents have been manually maintained, are beginning to deteriorate, and are accessible at only a few offices. Implementing an automated Land Information System can increase access to this data, plus provide effective use of natural resources, better service to the public, and more efficient decision making.

FARMINGTON DEMONSTRATION PROJECT
FARMINGTON, NEW MEXICO
ARCHAEOLOGICAL SITES OF NEW MEXICO

Top: The LIS will allow use of information on a national, state or local basis.
Bottom: This example shows archaeological resource data computed in the LIS.

Three Key Components of the System

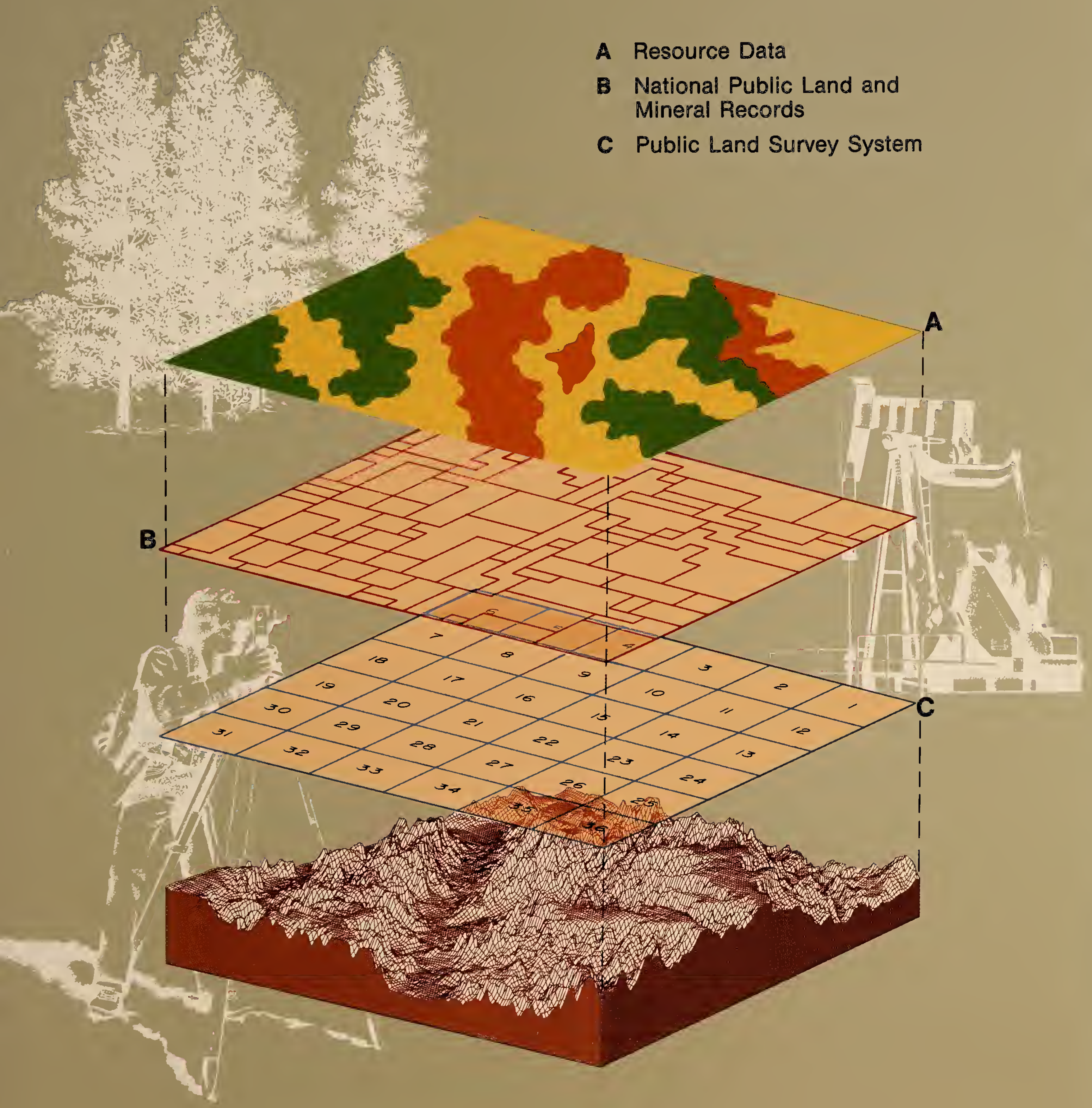
The BLM Land Information System has three key parts:

1. The automated **Geographic Coordinate Data Base (GCDB)** is built upon data from the National Public Land Survey System. This provides the ability to link records and resource data to legal descriptions of land parcels. This tie is a first step in developing a comprehensive land information system.

2. The **Automated Land and Mineral Record System (ALMRS)** provides information about ownership status, special designations (such as wilderness designation), and use authorizations such as mineral leases, mining claims and road and pipeline rights-of-way. This data is typically represented on master title plats.

3. The **Automated Resource Data (ARD)** represents information about the natural and cultural resources and characteristics of public land administered by BLM. This data is typically represented in a variety of formats, including maps, tables, charts and reports, such as those showing wildlife habitat or the location of timber sales. It is the storehouse of information about resource values and uses of the BLM-managed public lands.

The BLM Land Information System will link these three parts for efficient land and resource planning and for management of the competing demands and uses on the public lands. BLM will use computerized geographic information system (GIS) technology to link these sets of data.

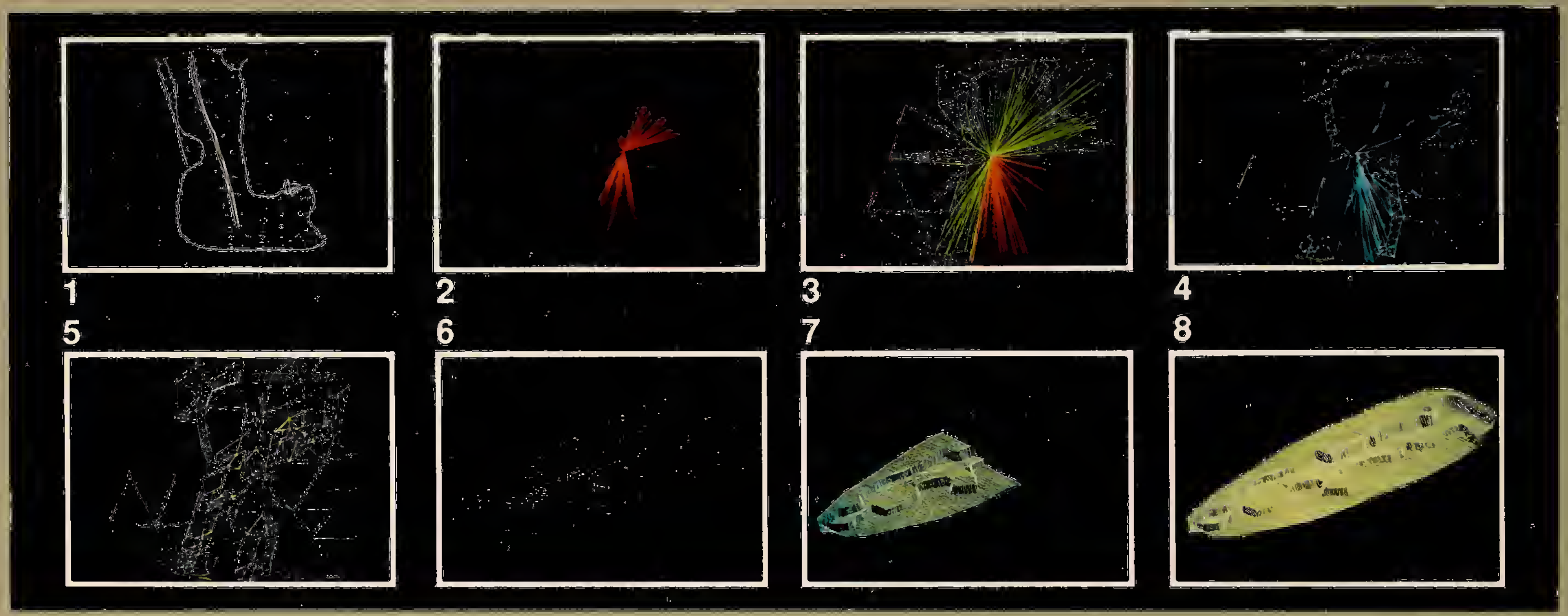

A Resource Data
B National Public Land and Mineral Records
C Public Land Survey System
A
B
C

Moving to an Automated Environment

BLM is a leader in many areas of natural resource management. The agency's goal for information and data management is to be a leader in the effective use of automation to manage public lands and resources for multiple use. BLM will achieve this goal through an operational automated Land Information System.

In managing towards this goal, BLM has established a set of principles to guide the development of its Land Information System. Among these are:

- BLM will manage information, as well as lands and resources as valuable public assets.
- To BLM, computers are tools to help BLM employees do their jobs better.
- BLM will share its data with others in support of agency missions. This requires establishing common data standards and exchange capabilities with different organizations.
- Up-to-date, proven technology will be used.



This series of images demonstrates the sequence that the LIS computer goes through to create a digital model of the surface of an open-pit coal mine. This type of graphic portrayal of an area, such as an open-pit mine, better enables BLM land managers to assess impacts, manage ongoing uses, and make determinations of mineral extractions to ensure proper lease payments to the federal government. The first figure is a planimetric view of the mine while the middle images show the phases of construction of three dimensional triangles based on northern, eastern and elevation data from each of the three triangle corners. The last figure shows surface profiles of the entire digital mine model.

Strategy for the Future

BLM's current activities in making the Land Information System operational include automating the data now on paper, acquiring the necessary equipment and software, and developing the organizational capability to process data differently than in the past.

A Bureauwide plan has been prepared, which addresses all the actions needed to acquire and successfully implement the next cycle of data systems. The plan establishes an overall framework for the general design of software, hardware, and communications necessary to effectively meet BLM's automation requirements in the 1990s. The plan ties together all the components and also links the Land Information System to BLM's administrative and office automation applications. Top-level management uses the plan to ensure that BLM goals and principles are followed.

Introduction

The Bureau of Land Management's Task

The Bureau of Land Management (BLM) is an agency of the U.S. Department of the Interior. BLM manages approximately 272 million acres of public lands — about one-eighth of the land in the United States — and the mineral estate underlying another 300 million acres of lands administered by other government agencies or owned by private interests.

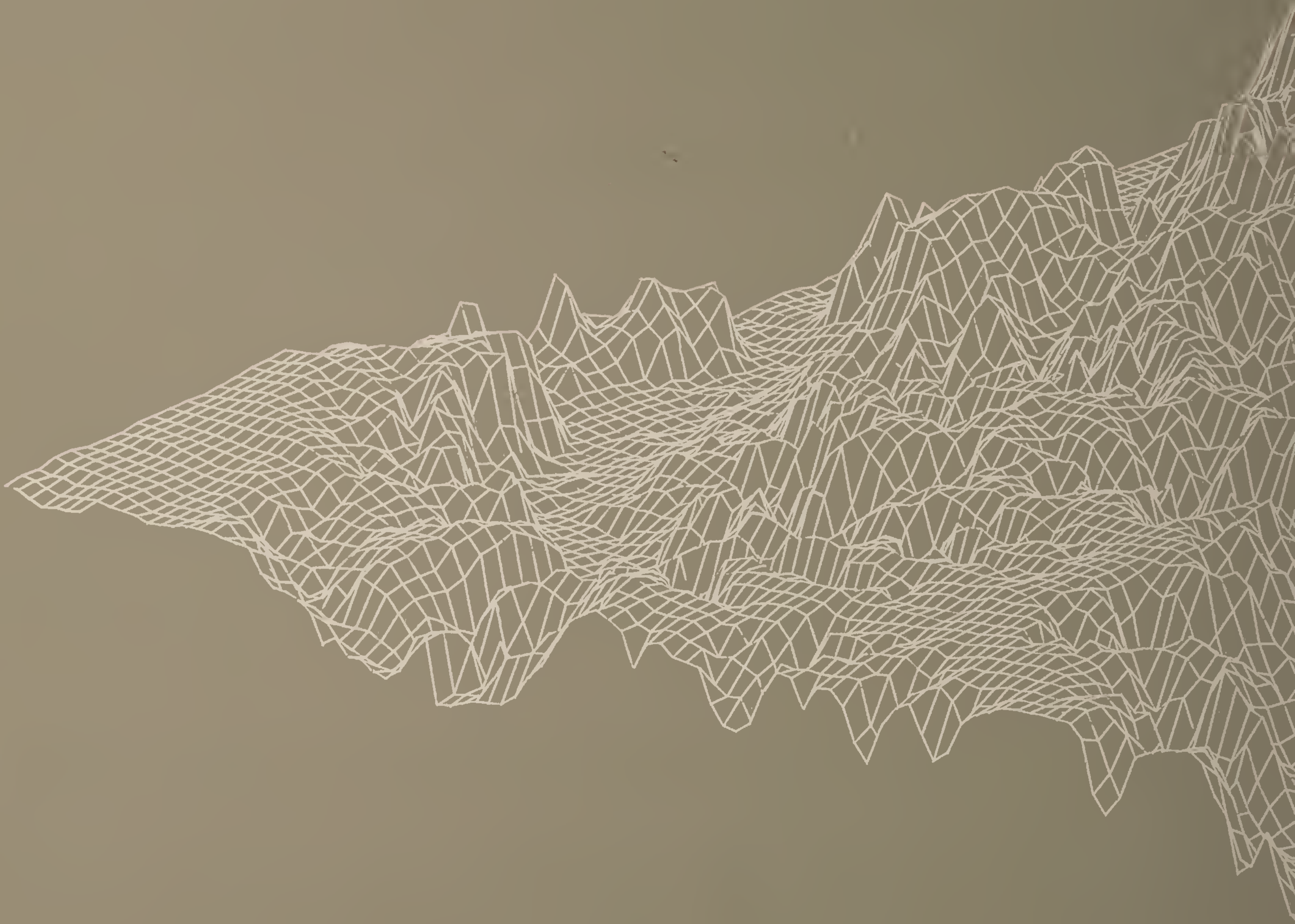
Most of the public lands administered by BLM are located in eleven western states: Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Wyoming. Significant BLM responsibilities also exist in the midwestern and eastern United States where the agency manages federal minerals on about 34 million acres and maintains the federal survey system and land and minerals records system. Public land resources managed by BLM include rangeland, timber, minerals, watershed, fish and wildlife habitat, wilderness, recreation, and archaeological and historical values.

Digitized geographic information is one component of the LIS.

BLM's Commitment to Automation

BLM's earliest responsibility for maintaining land-based information originated from the establishment of the Public Land Survey System in the United States in 1785. Today, BLM maintains a vast records system, including public land survey information, federal lands and minerals records, and natural resource data, which allows BLM to manage, lease and protect the public lands.

In fulfilling its public land management responsibilities, BLM has looked for new solutions to managing land information. Historically, BLM's land information has been stored on paper and mylar. However, with the advent of computer technology, BLM began automating parts of its records functions in the late 1970s. BLM has made a long-term commitment to the implementation of a fully automated Land Information System. BLM will preserve historically valuable documents, and replace traditional procedures based on handling paper, with more efficient automated procedures.



March 3, 1849

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT